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THE GREEN LIBRARY

The challenge of environmental sustainability

DIE GRÜNE BIBLIOTHEK

Ökologische Nachhaltigkeit in der Praxis

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Preface

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Sustainability and going green are a trend. The two concepts seem to be applicable in every context and have already reached library architecture and design too. They are, of course, more than a trend and encompass a comprehensive and complex set of concepts and policies that are directed towards many aspects of life. They focus essentially on the aim of social responsibility and consideration for future generations by reducing the ecological footprint, which is an expression and accounting system for bio-capacity and compares human demands on nature with the biosphere's ability to provide and regenerate resources.

It was the German mining official Hans Carl von Carlowitz (1645–1714)[1] who coined the term "sustainability" as early as 1713 in answer to the shortage of wood, a result of the developing industry of iron ore smelting. In his work *Sylvicultura oeconomica*[2] he stated that one should only cut down as many trees as can be grown again and consequently demanded a sustainable exploitation of wood. The concept of sustainability and sustainable development evolved further in the 20th century, but this time within the global and political agenda of the United Nations. Important milestones were the Report of the Brundtland Commission, *Our common future*, 1987, and the action plan *Agenda21* regarding a sustainable development for the 21st century, which was signed by 178 countries during the United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro in 1992. The Brundtland Report provides the modern definition of sustainability: "Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs."[3] The inherent emphasis on ecology was later extended with the three constituent dimensions of sustainability: the environmental, social and economic. Since 2004 the umbrella organization United Cities and Local Govern-

1 "Lexikon der Nachhaltigkeit", www.nachhaltigkeit.info/artikel/hans_carl_von_carlowitz_1713_1393.htm?sid=9b6bf4ebdd2a7738b99774b339d167b2. Accessed on 28 March 2013.

2 *Sylvicultura oeconomica: hausswirthliche Nachricht und naturmäßige Anweisung zur wilden Baum-Zucht* / Hannß Carl von Carlowitz. Reprint der 2. Aufl. Leipzig: Braun, 1732. Remagen-Oberwinter: Kessel, 2009 (Forstliche Klassiker, Bd. 1). S.a. the first use of the term sustainability: "*Wird derhalben die größte Kunst/Wissenschaft/Fleiß und Einrichtung hiesiger Lande darinnen beruhen / wie eine sothane Conservation und Anbau des Holtzes anzustellen / daß es eine continuierliche beständige und* nachhaltende *Nutzung gebe / weiln es eine unentberliche Sache ist / ohne welche das Land in seinem Esse nicht bleiben mag.*" (Carlowitz 2009, 150)

3 *Report of the World Commission on Environment and Development: Our common future*. (1987). New York: United Nations, p. 41.

ments (UCLG),[4] which adopted *Agenda21 for culture*[5] as a reference document for its programmes, has added culture as a fourth dimension of sustainability. Today sustainability has become a central principle for all kinds of public action. This is in line with policies of IFLA, which passed a *Statement on libraries and sustainable development* during its 75th Congress in Glasgow in 2002 and also stressed the concept with the motto of the 2010 Congress in Gothenburg, "Open Access to knowledge – sustainable progress".

The policies and selected definitions mentioned above provide an initial, general theoretical framework. Sustainability should, however, be actively incorporated in the daily life of each citizen and be transformed into an experience that can be actively and permanently shared by all. Architecture, which is both a manifestation and a reflection of functional, technical, social, environmental and aesthetic considerations within a certain time span, is only one area, albeit a very important area, for the application of the concept. The transition to the construction and design of sustainable buildings as well as (in the library world) sustainable services, encompasses many aspects and strategies and requires a rethinking of the appropriate use of building materials and technologies. It has transformed the way buildings are constructed and demands a responsible re-evaluation of the outcome of the building process by all parties involved, but pays particular attention to acceptance by users. The process could even be said to have an educational benefit in itself, encouraging users to act and live in a sustainable and ecologically responsible way, finding expression both in daily routines and in the environment. Recent analysis on the gross energy consumption in the European Union has shown, for example, that 40% of energy resources are allotted to the building sector.[6] This demonstrates that there are considerable economic implications in improving the energy consumption of new buildings, or, what is even more challenging, in adjusting existing buildings with aging systems and structures. In Europe, the aim is to reach the level of 20% renewable energy by the year 2020.[7] In China a new project named "Energy Saving and Emission Reduction of Libraries (ESERL)"[8] has been launched – also taking into consideration that the energy costs of many libraries in China have become larger than the book-purchasing funds.

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4 www.uclg.org/. Accessed on 2 April 2013.

5 www.agenda21culture.net/. Accessed on 2 April 2013.

6 http://europa.eu/legislation_summaries/internal_market/single_market_for_goods/construction/en0021_de.html, see also: *Richtlinie über die Gesamtenergieeffizienz von Gebäuden der Europäischen Union*. See: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32010L0031:DE:NOT. Accessed on 28 March 2013.

7 www.bmvbs.de/cae/servlet/contentblob/46918/publicationFile/, p. 10. Accessed on 30 April 2013.

8 http://conference.ifla.org/past/ifla77/196-wang-en.pdf. Accessed on 2 April 2013.

This book mirrors the current efforts to create sustainability through varied solutions for the particular challenges of library architecture and related services. The articles collected in this book provide many examples and approaches from a range of countries, which will give the reader an overview of current solutions and provide examples of sustainable and green libraries and their respective requirements and applications.

Obviously a common and very prominent feature of the sustainable design and construction of library buildings is the special emphasis given to the concept of protection. Protection in this sense covers natural resources (earth, air and water). Depending on the site chosen it will cover nature and landscape; it will encompass the use of material-related and energy resources and finally, it covers the protection of the climate and thus the health of each individual. Environmental protection has become one of the social and cultural values of citizens when stating the necessity of taking responsible action and finds expression within the design and building process. Institutions, including libraries, increasingly choose to implement Environmental Sustainability strategic plans.

A new library building does not inherently possess green or sustainable qualities and features – in order to achieve that, it is necessary for architects and building engineers to embrace and implement innovative, energy-efficient, post-fossil technologies and special building materials and last, but not least, to assess the impact on the local climate. Libraries, as highly trusted public institutions, have the capacity to serve with their buildings as models for the use of environmentally friendly building materials and regenerative energy or for the successful conservation of existing building fabric. They can be constructed as low- or even zero-energy buildings or adjusted accordingly to new standards.

However, potential users of library buildings should not be placed in a situation where they have "Eyes that do not see", as Le Corbusier put it in his 1923 book *Vers une architecture*. They should be in a position to be able to judge whether a library building is sustainable or green or whether these terms are just being used as a fashionable label. They need to develop an understanding of what a sustainable building actually entails, including the financing, administration and management of facilities and green campuses throughout their whole life-cycle. This extends from the planning stage, through the selection of the building site, the construction of the building and its interior design via the maintenance and renovation of the building to its re-purposing, re-cycling or even demolition. The majority of articles in this book prove that libraries are very much aware of these issues and well on their way to sustainable library buildings and services with their individual projects.

A number of tools has been developed at national and international levels to support a reliable assessment of whether a building meets the desired standards.

They encompass certificates such as Leadership in Energy and Environmental Design (LEED, USA), Building Research Establishment Environmental Assessment Method for buildings (BREEAM, UK, Netherlands, Spain), Deutsches Gütesiegel Nachhaltiges Bauen (Germany),[9] Minergie (Switzerland),[10] Haute Qualité Environmentale des bâtiments (HQE, France),[11] Comprehensive Assessment System for Built Environment Efficiency (Casbee, Japan)[12] or the Green Star Certificate (Australia).[13] The concept of sustainability has been integrated also into various ISO-Norms, such as the *DIN ISO 14001*, which deals with the Ecological Management systems for companies, or the *ISO/TR 11219:2012 Information and Documentation*, which focuses on qualitative conditions and basic statistics for library buildings. To ensure sustainability, well supported documentation is necessary to underpin the maintenance of a facility. All these aspects are covered in individual articles in this book.

The qualities of library buildings and their spaces have been summed up in the famous "Ten Commandments" of the British architect Harry Faulkner-Brown, which have been adopted widely in the library world. They contain in his list a reference to the demand that libraries should be "constant in environment". Later in 2006, Andrew McDonald revisited these requirements, referring to them as "qualities". According to MacDonald, libraries should be "environmentally friendly". He demands suitable conditions not only for the comfort of readers, but also for the operation of computers and the preservation of library materials. He writes: "Any building or energy management system should be designed to accommodate the lowest common denominator of building management, and the building should be environmentally appropriate."[14] There is clearly an emerging need to redefine and extend these terms and to establish sustainability as a core principle in building environmentally friendly libraries.

It should be possible to trace the story of sustainable library architecture and services in the articles collected in this book. I hope it will find many interested readers who will find in it inspiration to take appropriate action in their own future library building projects.

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9 www.stz-egs.de/wp-content/uploads/2009/01/dgnb_systembeschreibung_online_20090112a.pdf. Accessed on 2 April 2013.
10 www.minergie.ch/. Accessed on 2 April 2013.
11 http://assohqe.org/hqe/. Accessed on 2 April 2013.
12 www.ibec.or.jp/CASBEE/english/. Accessed on 2 April 2013.
13 www.gbca.org.au/green-star/certification/. Accessed on 2 April 2013.
14 http://liber.library.uu.nl/index.php/lq/article/view/7840/8010. Accessed on 2 April 2013.